

Bruce (Shidi) Xi

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🌐 brucexi999

Education

The University of British Columbia

Vancouver, BC

Master of Engineering in Electrical and Computer Engineering

2021–2024

- Research project: Concurrent VLSI Routing with Multi-agent Deep Reinforcement Learning
- Relevant courses: Deep Learning, ML Hardware Accelerator, Computer Architectures, Digital Hardware Design, Embedded Systems, VLSI, IC Testing and Reliability

Imperial College London

London, UK

Bachelor of Engineering in Materials Science and Engineering

2018–2021

- Graduated with First-Class Honours
- Obtained Dean's List for three consecutive years (2018–2021)

Project

Concurrent VLSI Routing with Multi-agent Deep Reinforcement Learning

May-Oct. 2023

- Independently mastered reinforcement learning and VLSI global routing through exhaustive self-study and comprehensive literature review
- Developed a novel machine learning framework to address the VLSI global routing problem in a concurrent manner, integrating multi-agent reinforcement learning with deep neural networks
- Addressed training challenges by fine-tuning hyperparameters through a grid search approach, leading to significant performance improvements
- Actively contributed to research group meetings by sharing project insights and progress, effectively communicating complex technical details to supervisors and peers
- The proposed work overcame the traditional net-ordering issue, guaranteed zero overflow, and outperformed an A* baseline by 2.6% in terms of wirelength

Embedded System Design

Jan.-Apr. 2023

- Designed key components of an embedded system including a 4-way set-associative cache controller and a DRAM controller using Verilog. The cache reduced the runtime of a benchmark by 43%
- Implemented the system on an FPGA with a provided soft microcontroller
- Developed software and firmware in C that interacted with hardware using SPI, IIC, and CAN protocol
- Utilized hardware timer interrupt and designed a snake game software that ran on the embedded system

Experience

Motorola Solutions

Vancouver, BC

Design Validation Co-op

May-Dec. 2022

- Conducted extensive camera tests, ensuring precision both in lab settings and office environments
- Developed Python-based software, realizing test automation and data analysis, resulting in a significant enhancement in test efficiency. Some tests achieved automation of up to 90%
- Collaborated effectively within a team framework, leveraging tools like Git and Jira for optimal workflow management

University College London

London, UK

Undergraduate Research Assistant

June-Aug. 2021

- Played an integral role in the research team by meticulously taking measurements and preparing samples
- Demonstrated analytical skills by independently evaluating vast datasets and presenting insights effectively to the research group, fostering informed decision-making

Skills

Hardware: Verilog, FPGA, Modelsim, Quartus, Cadence

Software: Python, C, ARM Assembly, Linux, Git, GitHub

Research: LaTeX, Academic and Technical Writing, Mendeley